In the Claims:

Please amend Claim 1 as follows, and cancel claims 2-11, without prejudice. In addition, please add new claims 12-57 as set forth below.

1. (Currently Amended) An image encoding device having:

means of image encoding which encodes images in accordance with an irreversible compression method capable of processing input images in small region units,

means of image decoding which decodes encoded data created with the means of encoding,

means of characteristic pixel extraction which ~~utilises~~ utilizes input images and decoded images obtained by the means of image decoding to extract characteristic pixels,

means of calculating characteristic distortion which ~~utilises~~ utilizes characteristic pixels to calculate characteristic distortion of the decoded images in relation to the input images, and

means of parameter value control which controls parameter values determining the extent of data compression in the means of image encoding in accordance with the magnitude of characteristic distortion.

2. (Cancel without prejudice)

3. (Cancel without prejudice)

4. (Cancel without prejudice)

5. (Cancel without prejudice)

6. (Cancel without prejudice)

7. (Cancel without prejudice)

9. (Cancel without prejudice)

10. (Cancel without prejudice)

11. (Cancel without prejudice)

12. (New) The image encoding device according to Claim 1, wherein the means of calculating characteristic distortion calculates the magnitude of the characteristic distortion based on a difference between differences between individual pixel values corresponding to the characteristic pixels of the input image and the decoded image, and an average of the differences between individual pixel values.

13. (New) The image encoding device according to Claim 1, wherein the means of calculating the characteristic distortion calculates variations in the differences between the pixel values of the characteristic pixels of the input image and the decoded image.

14. (New) The image encoding device according to Claim 1, wherein the means of calculating the characteristic distortion calculates the characteristic distortion based on a value of the dispersion of differences between the pixel values of some of the pixels of the input image and the decoded image by small regions.

15. (New) An image encoding device according to Claim 1, wherein the means of calculating characteristic distortion calculates the dispersion of differences between pixel values corresponding to the characteristic pixel of the input images and decoded images by small regions, taking the maximum value thereof as the size of the characteristic distortion.

16. (New) An image encoding device according to Claim 1, wherein the means of calculating characteristic distortion calculates the differences between pixel values corresponding to the input images and decoded images together with the sum of the difference between those differences and the average by small regions, taking the maximum value thereof as the size of the characteristic distortion.

17. (New) The image encoding device according to Claim 1, wherein the means of characteristic pixel extraction performs the extraction by classifying at least some of the pixels of the input images and at least some of the pixels of the decoded images.

18. (New) The image encoding device according to Claim 17, wherein the means of calculating the characteristic distortion calculates the magnitude of characteristic distortion for each of the classifications classified by the means of characteristic pixel extraction.

19. (New) The image encoding device according to Claim 18, wherein the means of parameter value control determines the extent of data compression by setting a threshold value of the magnitude of distortion for each of the classifications.

20. (New) An image encoding device according to any one of Claims 1, 12, 13, 14, 15 or 16, wherein the small regions are blocks, the means of extracting characteristic pixels comprises a means of extracting characteristic blocks which utilizes the decoded and input images in order to extract characteristic blocks, the characteristic pixels being extracted from within the characteristic blocks.

21. (New) An image encoding device according to Claim 20, wherein the means of extracting characteristic blocks extracts blocks wherein the pixel values of the input images do not tally in all the rows or all the columns within the block, and extracts blocks of decoded images corresponding to the blocks which have been extracted wherein the pixel values of the decoded images tally in all the rows or all the columns within the block.

22. (New) An image encoding device according to Claim 20, wherein the means of extracting characteristic blocks extracts blocks wherein the pixel values of the input images do not all tally, and extracts blocks of decoded images corresponding to the blocks which have been extracted wherein all the pixel values of the decoded images tally.

23. (New) An image encoding device according to Claim 20, wherein the means of extracting characteristic blocks further comprises a means of classifying and extracting characteristic blocks which classifies and extracts characteristic blocks, and of extracting pixels within the characteristic blocks.

24. (New) The image encoding device according to Claim 23, wherein the means of classifying and extracting characteristic blocks classifies the blocks in accordance with the properties of the blocks of the decoded image.

25. (New) The image encoding device according to Claim 23, wherein an evaluation criterion is set based on the activity of the pixel values for each of the blocks classified by the means of classifying and extracting the characteristic blocks.

26. (New) An image encoding device according to Claim 20, wherein the means of classifying and extracting characteristic blocks extracts blocks of decoded images having first classified them into perfect flat blocks wherein all the pixel values tally, blocks other than perfect flat blocks wherein the pixel values in all the rows or on all the columns tally, and other blocks.

27. (New) The image encoding device according to Claim 23, wherein the means of calculating characteristic distortion calculates the magnitude of distortion for each of classification of the blocks classified by the means of characteristic pixel extraction.

28. (New) The image encoding device according to Claim 27, wherein the means of parameter value control calculates the extent of data compression by setting a threshold value of the magnitude of distortion for each of the classifications.

29. (New) An image encoding device as in Claim 20, wherein the means of calculating characteristic distortion calculates block by block the dispersion of differences between the input image and pixels corresponding to the characteristic pixels of the decoded image, taking the maximum value for each classification classified by the means of classifying and extracting characteristic blocks as the characteristic distortion for each classification, while the means of controlling parameter values decides the degree of data compression by determining threshold values for the degree of characteristic distortion for each classification.

30. (New) An image encoding device comprising:

means of converting pixel values which reduces pixel value areas where visual detection of deterioration is difficult by applying a pixel value conversion table to an input image; and

means of image encoding which encodes the image after pixel value conversion.

31. (New) An image encoding device comprising:

means of converting pixel values which reduces pixel value areas where visual detection of deterioration is difficult by applying a pixel value conversion table to an input image so as to reduce the dynamic range of the entire input image; and

means of image encoding which encodes the image after pixel value conversion.

32. (New) An image encoding device comprising:

means of converting pixel values which reduces pixel value areas with low display reproducibility by applying a pixel value conversion table to an input image; and

means of image encoding which encodes the image after pixel value conversion.

33. (New) An image encoding device comprising:

means of converting pixel values which reduces pixel value areas with low display reproducibility by applying a pixel value conversion table to an input image so as to reduce the dynamic range of the entire input image; and

means of image encoding which encodes the image after pixel value conversion,

34. (New) The image encoding device according to claim 30, wherein the pixel value conversion table utilizes a gamma curve.

35. (New) The image encoding device according to claim 30, wherein the means of image encoding comprises an image encoding device comprising:

means of image encoding which encodes images in accordance with an irreversible compression method capable of processing input images in small region units,

means of image decoding which decodes encoded data created with the means of encoding,

means of characteristic pixel extraction which utilizes input images and decoded images obtained by the means of image decoding to extract characteristic pixels,

means of calculating characteristic distortion which utilizes characteristic pixels to calculate characteristic distortion of the decoded images in relation to the input images, and

means of parameter value control which controls parameter values determining the extent of data compression in the means of image encoding in accordance with the characteristic distortion.

36. (New) An image decoding device for decoding encoded data that has been encoded by the image encoding device according to claim 30, comprising:

means of decoding the encoded data of an input image; and

means of reconverting the pixel values of a decoded image using a pixel value reconversion table.

37. (New) The image decoding device according to claim 36, wherein the pixel value reconversion means is based on a function wherein the input/output relationship is opposite to that of the means of converting pixel values in an image encoding device comprising:

means of converting pixel values which reduces pixel value areas where visual detection of deterioration is difficult by applying a pixel value conversion table to an input image; and

means of image encoding which encodes the image after pixel value conversion.

38. (New) An image encoding device comprising:

means of image encoding which encodes input images in accordance with an irreversible compression method,

means of image decoding which decodes encoded data created by the means of image encoding,

means of calculating characteristic distortion which calculates characteristic distortion by comparing the decoded image and the input image by small region units,

means of dividing regions which divides regions by small region units in accordance with the degree of characteristic distortion, creating region-divided images with region-divided information,

means of creating region images which utilizes input and region-divided images to create region images,

means of encoding region-divided images which encodes region-divided images in accordance with an irreversible compression method and creates region-divided image encoded data,

means of encoding first-region images which encodes in accordance with an irreversible compression method the image of a stipulated region divided by the means of dividing regions,

means of encoding second-region images which encodes images of other regions with the required picture quality, and

means of combining encoded data which combines region-divided image encoded data and encoded data for each region into a single set of encoded data.

39. (New) An image encoding device comprising:

means of image encoding which encodes input images in accordance with an first image encoding method,

means of image decoding which decodes encoded data created by the means of image encoding,

means of calculating characteristic distortion which calculates characteristic distortion by comparing the decoded image and the input image by small region units,

means of dividing regions which divides regions by small region units in accordance with the degree of characteristic distortion, creating region-divided images with region-divided information,

means of creating region images which utilizes the input and region-divided images to create region images,

means of encoding region-divided images which creates region-divided encoded data by encoding region-divided data;

means of encoding one region in accordance with the first image encoding method and encoding other regions using an image encoding device comprising: means of image encoding which encodes images in accordance with an irreversible compression method capable of processing input images in small region units; means of image decoding which decodes encoded data created with the means of encoding; means of characteristic pixel extraction which utilizes input images and decoded images obtained by the means of image decoding to extract characteristic pixels; means of calculating characteristic distortion which utilizes characteristic pixels to calculate characteristic distortion of the decoded images in relation to the input images; and means of parameter value control which controls parameter values determining the extent of data compression in the means of image encoding in accordance with the characteristic distortion; and

means of combining encoded data which combines region-divided encoded data with encoded data for each region into a single set of data.

40. (New) An image encoding device comprising:

means of image encoding which encodes input images in accordance with a first image encoding method,

means of image decoding which decodes encoded data created by the means of image encoding,

means of calculating characteristic distortion which calculates characteristic distortion by comparing the decoded image and the input image by small region units,

means of dividing regions which divides regions by small region units in accordance with the degree of characteristic distortion, creating region-divided images with region-divided information,

means of creating region images which utilizes the input and region-divided images to create region images,

means of encoding region-divided images which creates region-divided encoded data by encoding region-divided data;

means of encoding one region in accordance with the first image encoding method and encoding other regions using an image encoding device comprising: means of reducing a pixel value area where visual detection of deterioration is difficult by applying a pixel value conversion table to an input image so as to reduce the dynamic range of the entire input image; and means of image encoding for encoding the image that has been subjected to pixel value conversion; and

means of combining encoded data which combines region-divided encoded data with encoded data for each region into a single set of data.

41. (New) The image encoding device according to claim 38 or claim 39, wherein the means of calculating characteristic distortion calculates the differences between corresponding individual pixels in the extracted small regions extracted from the input image and the decoded image, together with the sum of the differences between those differences and their average, wherein the sum is considered the magnitude of characteristic distortion.

42. (New) An image decoding device comprising:

means of encoded data separation which separates encoded data generated by the image encoding device according to any one of Claims 38,39 or 40 into region-divided encoded data and encoded data for each of the regions;

means of region-divided decoding which decodes the region-divided encoded data to create region-divided data;

means of decoding individual regions which decodes the encoded data for each region to create individual region images; and

means of combining decoded image data which creates a single decoded image by combining the individual region images in accordance with the region-divided data.

43. (New) An image encoding method comprising:

encoding images in accordance with an irreversible compression method capable of processing input images in small region units;

decoding encoded data created with the means of encoding,

extracting characteristic pixels by utilizing input images and decoded images obtained by the means of image decoding,

calculating characteristic distortion of the decoded images in relation to the input images by utilizing characteristic pixels; and

controlling parameter values determining the extent of data compression in the image encoding step in accordance with the characteristic distortion.

44. (New) A program to be performed by a computer comprising instructions for directing the computer to:

(i) encode images in accordance with an irreversible compression method capable of processing input images in small region units;

(ii) decode encoded data created in response to the encoding instruction,

(iii) extract characteristic pixels by utilizing input images and decoded images obtained in response to the decoding instruction;

(iv) calculate characteristic distortion of the decoded images in relation to the input images utilizing characteristic pixels; and

(v) control parameter values determining the extent of data compression in the execution of the image encoding instruction in accordance with the characteristic distortion.

45. (New) A computer readable storage medium for storing a program to be performed by a computer comprising instructions for directing the computer to:

(i) encode images in accordance with an irreversible compression method capable of processing input images in small region units;

(ii) decode encoded data created in response to the encoding instruction,

(iii) extract characteristic pixels by utilizing input images and decoded images obtained in response to the decoding instruction;

(iv) calculate characteristic distortion of the decoded images in relation to the input images utilizing characteristic pixels; and

(v) control parameter values determining the extent of data compression in the execution of the image encoding instruction in accordance with the characteristic distortion.

46. (New) An image encoding method comprising:

converting pixel values in order to reduce pixel value areas where visual detection of deterioration is difficult by applying a pixel value conversion table to an input image; and

encoding the image after pixel value conversion.

47. (New) A program to be performed by a computer comprising instructions directing the computer to:

convert pixel values in order to reduce pixel value areas where visual detection of deterioration is difficult by applying a pixel value conversion table to an input image; and

encode the image after pixel value conversion.

48. (New) A computer readable storage medium for storing a program to be performed by a computer comprising:

instructions for directing the computer to:

convert pixel values in order to reduce pixel value areas where visual detection of deterioration is difficult by applying a pixel value conversion table to an input image; and

encode the image after pixel value conversion.

49. (New) An image decoding method for decoding encoded data encoded by an image encoding device comprising:

means of converting pixel values which reduces pixel value areas where visual detection of deterioration is difficult by applying a pixel value conversion table to an input image; and

means of image encoding which encodes the image after pixel value conversion, the method comprising:

decoding the encoded data of an input image; and

reconverting the pixel values of a decoded image using a pixel value reconversion table.

50. (New) A program to be performed on a computer for image decoding encoded data that has been encoded by an image encoding device according to claim 30 comprising instructions for directing the computer to:

decode encoded data of an input image; and

reconvert the pixel values of the decoded image using a pixel value reconversion table.

51. (New) A computer readable storage medium for storing a program to be performed by a computer comprising instructions for directing the computer to:

decode encoded data of an input image; and

reconvert pixel values of the decoded image using a pixel value reconversion table.

52. (New) An image encoding method comprising steps of:

image encoding which encodes input images in accordance with an irreversible compression method,

image decoding which decodes encoded data created by the means of image encoding,

calculating characteristic distortion which calculates characteristic distortion by comparing the decoded image and the input image by small region units,

dividing regions which divide regions by small region units in accordance with a degree of characteristic distortion, thereby creating region-divided images with region-divided information,

creating region images which utilizes input and region-divided images to create region images,

encoding region-divided images that encode region-divided images in accordance with an irreversible compression method and create region-divided image encoded data,

encoding first region images which encode in accordance with an irreversible compression method the image of a stipulated region divided by means of dividing regions,

encoding second-region images which encodes images of other regions with the required picture quality, and

combining encoded data including the region-divided image encoded data and the encoded data for each region into a single set of encoded data.

53. (New) A program to be performed by a computer comprising instructions directing the computer to:

(i) image encode input images in accordance with an irreversible compression method,

(ii) image decode said encoded data,

(iii) calculate a characteristic distortion by comparing the decoded image and the input image by small region units,

(iv) divide regions by small region units in accordance with the degree of characteristic distortion so as to create region-divided images with region-divided information,

(v) create region images utilizing input and region-divided images,

(vi) encode region-divided images in accordance with an irreversible compression method and create region-divided image encoded data,

(vii) encode first region images of a stipulated ones of the region divided in accordance with an irreversible compression method,

(viii) encode second-region images of other regions with the required picture quality, and

(ix) combine region-divided image encoded data and encoded data for each region into a single set of encoded data.

54. (New) A computer readable storage for storing a program to be performed by a computer comprising instructions for directing the computer to:

image encoding which encodes input images in accordance with an irreversible compression method,

(i) image encode input images in accordance with an irreversible compression method,

(ii) image decode said encoded data,

(iii) calculate a characteristic distortion by comparing the decoded image and the input image by small region units,

(iv) divide regions by small region units in accordance with the degree of characteristic distortion so as to create region-divided images with region-divided information,

(v) create region images utilizing input and region-divided images,

(vi) encode region-divided images in accordance with an irreversible compression method and create region-divided image encoded data,

(vii) encode first region images of a stipulated ones of the region divided in accordance with an irreversible compression method,

(viii) encode second-region images of other regions with the required picture quality, and

(ix) combine region-divided image encoded data and encoded data for each region into a single set of encoded data.

55. (New) An image encoding method comprising steps of:

image encoding which encodes input images in accordance with an irreversible compression method,

image decoding which decodes encoded data created by the means of image encoding,

calculating characteristic distortion by comparing the decoded image and the input image by small region units,

dividing regions by small region units in accordance with a degree of characteristic distortion so as to create region-divided images with region-divided information,

creating region images which utilizes input and region-divided images to create region images,

encoding region-divided images in accordance with an irreversible compression method and creating region-divided image encoded data,

encoding first-region images of a stipulated divided region in accordance with an irreversible compression method,

encoding second-region images of other regions with the required picture quality, and

combining region-divided image encoded data and encoded data for each region into a single set of encoded data.

56. (New) A program to be performed by a computer comprising instructions directing the computer to:

(i) create region images which utilizes input and region-divided images to create region images,

(ii) encode region-divided images in accordance with an irreversible compression method and create region-divided image encoded data,

(iii) encode first-region images of a stipulated dividedregion in accordance with an irreversible compression method,

(iv) encode second-region images of other regions with the required picture quality, and

(v) combine region-divided image encoded data and encoded data for each region into a single set of encoded data.

57. (New) A computer readable storage medium for storing a program to be performed by a computer comprising instructions for directing the computer to:

(i) create region images which utilizes input and region-divided images to create region images,

(ii) encode region-divided images in accordance with an irreversible compression method and create region-divided image encoded data,

(iii) encode first-region images of a stipulated dividedregion in accordance with an irreversible compression method,

(iv) encode second-region images of other regions with the required picture quality, and

(v) combine region-divided image encoded data and encoded data for each region into a single set of encoded data.